Journal of Research on the Lepidoptera 16(3):141-145, 1977

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OCELLUS VARIATION AND WINGSPAN IN *ATTACUS ATLAS* LINNAEUS.,

IS THERE A RELATIONSHIP?

(SATURNIIDAE)

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Considerable variation exists between the size and position of the elliptical hyaline area of the forewing. It is this area, when surrounded with darkly pigmented scales that constitutes the postdiscal ocellus. The discal ocellus is triangular in shape and situated nearer to the basal area of the forewing. Some specimens of this species show the complete absence of this first, elliptical hyaline area (fig. 4), whereas in other specimens enlargement of this area results in the fusion of the postdiscal ocellus with the discal ocellus (fig. 3). By chance, the author when comparing these forms noticed that the form exhibiting 'fusion' also had a considerably larger wingspan than the average for its sex. It was this observation that prompted the author to investigate further, and try to provide an answer to the question ". . . is there a relationship between wingspan and postdiscal ocellus variation? . . ."

A sample of four hundred and ninety set specimens of *A. atlas* Linn., were used for the study, all being bred in India. For each separate individual the length of the elliptical hyaline area was measured, as well as the distance between the apices of the forewings. The gross sample was segregated into two divisions, that of male and female specimens. Once this was completed scattergrams were prepared illustrating 'Wingspan vs Ocellus length' in millimetres. One for the sample of 146 male specimens, and a second for the sample of 344 female specimens.

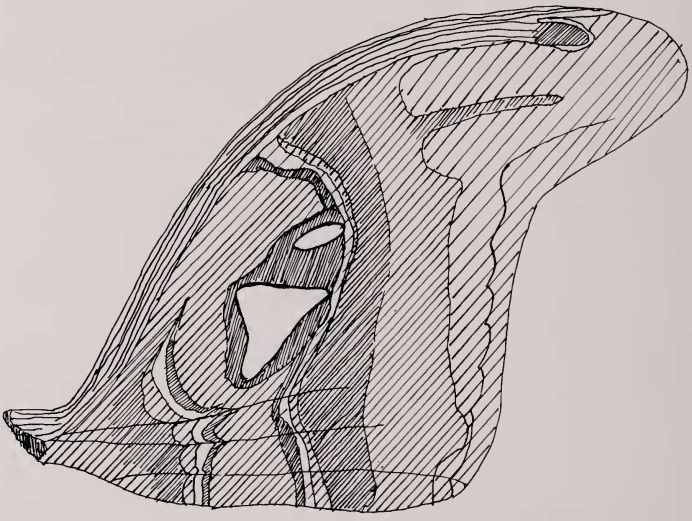

Fig. 1.—Forewing maculation of *A. atlas*. Typical male.

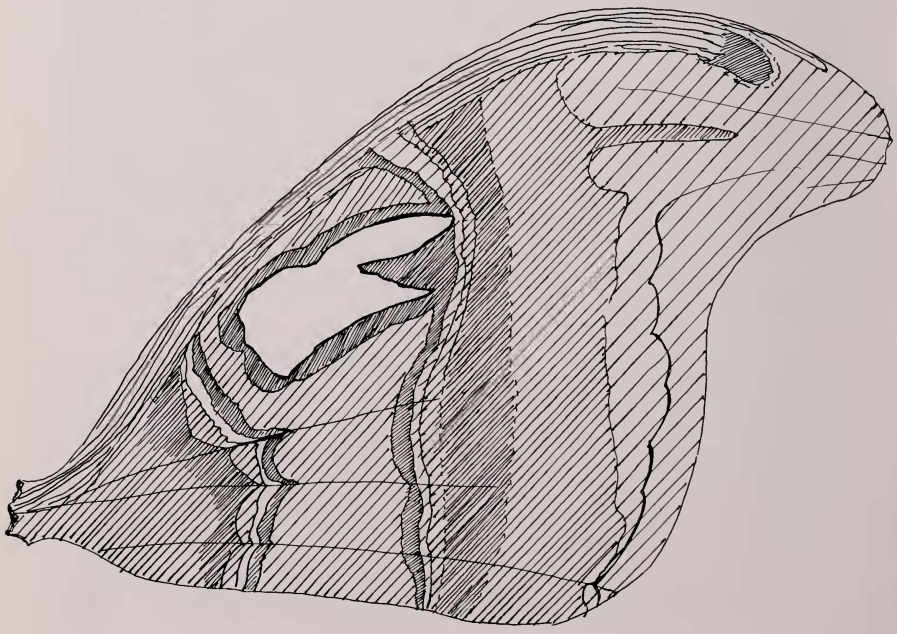

Fig. 3.—Forewing maculation of *A. atlas*. Female showing fusion of hyaline areas, discal and postdiscal.

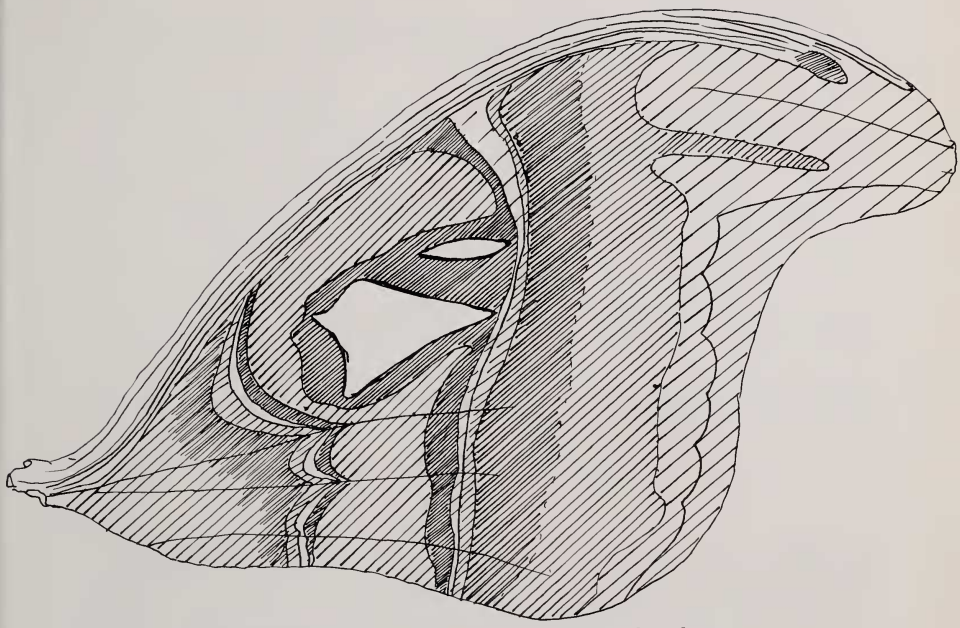

Fig. 2.—Forewing maculation of *A. atlas*. Typical female.

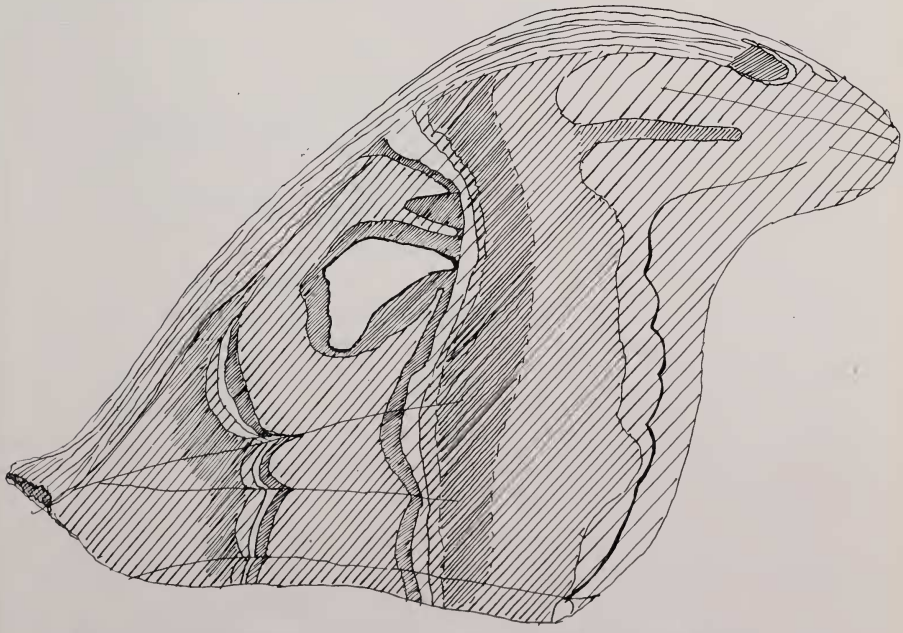

Fig. 4.—Forewing maculation of *A. atlas*. Female showing absence of post-discal hyaline area.

RESULTS. (table 1.)

TABLE I

MALES N=146	FEMALES N=344
Greatest recorded wingspan = 221 mm	Greatest recorded wingspan = 247 mm
Smallest recorded wingspan = 175 mm	Smallest recorded wingspan = 166 mm
Mean value for wingspan = 196 mm	Mean value for wingspan = 202 mm
Greatest length of elliptical hyaline area of forewing = 14 mm	Greatest length of elliptical hyaline area of forewing = 18 mm
Smallest length of elliptical hyaline area of forewing = 1 mm	Smallest length of elliptical hyaline area of forewing = 0 mm
Mean value for elliptical hyaline area of forewing = 7.56 mm	Mean value for elliptical hyaline area of forewing = 10.23 mm
Correlation was calculated between the length of the elliptical hyaline area and wingspan, the value obtained was found to be -0.707	Correlation was calculated between the length of the elliptical hyaline area and wingspan, the value obtained was found to be +0.252

DISCUSSION

The correlation value between the wingspan of a female and the length of the elliptical hyaline area was found to be 0.252 which shows that there is a weak, but nevertheless significant relationship between wingspan and ocellus. Furthermore, as the figure obtained is positive the relationship is a direct one. Thus, a specimen with a small wingspan would show a greater tendency towards the small ocellus size. This relationship is indeed verified. From the three specimens in the sample exhibiting the absence of the ocellus the wingspans were 166, 182 and 184 millimetres, these figures are well below the mean for the sample which was calculated at 202mm. Alternatively, we can look at the incidence of fusion within the sample. Two examples of the fused condition were found with wingspans of 221 and 211 mm, both were above the mean for wingspan, this suggests strongly that the relationship is direct.

We can thus predict that the specimens with unusually small wingspans will show a reduction in ocellus size with complete deletion of the area in extreme examples. In specimens showing

unusually large wingspans we can predict that the two hyaline areas of the forewing will increase in size and ultimately fuse.

In the sample of males, the correlation figure was found to be -0.707, this forcibly shows that there is a 'strong' relationship and good correlation. From the knowledge that the figure is negative we can arrive at the conclusion, that unlike the case of the females the relationship within the male population is indirect. Thus specimens with large wingspans would have small reduced ocelli on the forewings, while specimens with smaller than average wingspans would have larger than average ocelli. This point cannot be illustrated by reference in the sample to fused or absent areas as none were found. The females therefore in this sample exhibited the extreme variations, within the male population these extremities were not shown.

ACKNOWLEDGEMENTS

The author would like to express his thanks to Mr. Minet of Hastings College of Further Education for providing the statistical approach to the data and generally helping with the mathematical aspect. My thanks are also due to Mr. Perrie who furnished the specimens for the study.

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